Proceedings of the

Bus Rapid Transit Demonstration Program
Workshop on Image and Marketing

Honolulu, Hawaii

February 8 and 9, 2000

The Federal Transit Administration (FTA) and the City and County of Honolulu hosted the third workshop of the Bus Rapid Transit (BRT) Consortium in Honolulu, Hawaii on February 8 and 9, 2000, focusing on Image and Marketing. The workshop was held in conjunction with the Sixth Meeting of the United States (US) - Japan Transportation Experts under the US-Japan Science and Technology Agreement, and included presentations by the Japanese delegation on their accomplishments and perspectives on BRT.

Day 1: Tuesday, February 8

Opening Remarks

Cheryl Soon, Director of the Department of Transportation Services for the City and County of Honolulu, welcomed participants to the workshop. She related how their BRT project, City Express!, is tied to the high-capacity and urban design objectives of the Oahu Trans Y2K Plan:

- providing better, faster, and more reliable bus service,
- boosting ridership and reducing the use of automobiles,
- supporting economic growth and improved quality of life in Honolulu, including better urban design.

One of the key transit system improvements of City Express! is all-day express service, providing a 30-minute reduction in travel time on the route and eliminating the need for

some transfers. The next steps for City Express! are the development of an 11.3-mile extension of the system, installation of electric vehicles, and priority signalization.

The Oahu Trans Y2K Plan is the result of an inclusive, island-wide community-based mobility planning process sponsored by the City and County of Honolulu in cooperation with the State of Hawaii Department of Transportation. The plan aims to restore the waterfront, cut the width of the 10-lane waterfront highway in half, improve the economy and quality of life on the island, line its boulevards with trees, and encourage the use of bicycles and walking. This is a community-based plan promoting sustainable economic growth, while preserving the quality of life. The companion Honolulu Bicycle Master Plan and the Traffic Calming Plan address traffic calming through the vastly expanded use of bicycles and walking, as well as measures aimed at motorists.

Leslie Rogers, FTA Region IX Administrator, spoke of some of the challenges facing Honolulu and the rest of Hawaii in particular, and Region IX in general, which contain some of the fastest growing areas in the United States. These areas need relief for their water and transportation problems.

The Federal Government supports rail projects in a number of Region IX cities, including Los Angeles, San Francisco, San Diego, Sacramento, and San Jose. One hundred eighty projects are currently in the New Starts pipeline — the demand for funding far exceeds available funds. FTA seeks to respond to this challenge through innovation, demonstrating that BRT can provide an attractive, effective, and possibly interim solution to transportation problems of metropolitan areas.

The focus of the Honolulu workshop, enhancing the image of bus service and effective marketing, is one of the basic requirements for BRT success. The image of the bus needs to be changed to one of fast, efficient service that is easy to comprehend. The next Region IX BRT project to begin will be the Los Angeles “Rapid Bus” project along Ventura Boulevard in the San Fernando Valley. Other BRT projects in the region include City Express! in Honolulu, Line 22 in Santa Clara Valley, and the San Pablo Avenue Corridor in the Alameda Contra Costa Transit District.

Koji Inoue, Vice Minister for Technical Affairs of the Japanese Ministry of Transport, discussed how communications technology can produce a major improvement in bus service. The Japanese can learn from United States examples to improve the safety of their transit systems.

Ed Thomas, Associate FTA Administrator for Research, Demonstration, and Innovation, reviewed the two-day agenda, and gave an overview of the workshop objectives:

- Coordinate and compare BRT science and technology programs of the United States and Japan.
- Highlight Honolulu City Express!
- Exchange information on image and marketing. The City of Honolulu has one of the best marketing programs in the country.
- Offer Japanese and other international perspectives.
- Discuss and plan future BRT Consortium activities.

He discussed key items related to transit, and BRT in particular, in the President's FY2001 budget proposal to Congress:

- Formula Program (clean fuel buses)
- Discretionary Programs (New Starts (40%), Bus Program (20%), and Rail Modernization (40%))
- Other FTA Programs
- Transit Cooperative Research Program
- University Transportation Centers — they play an important role in innovation. Transit operators should seek opportunities to work with universities on professional capacity building, by offering students internships in their agencies.
- Research and Technology Program — will include a support program for BRT.
- Flexible Highway Funding — the portion of highway funding allocated to transit seems to be on a declining trend. BRT may be able to reverse this trend, as it overlaps traditional highway systems in areas such as signal priority. As a form of intermodal transportation, it may stand to benefit from this funding source.

In the FY2001 budget proposal the Bus Program portion of Discretionary Program funding is $526 million. $159 million in funding for Los Angeles clean fuel buses, Delta area transit improvements, and transportation for the 2002 Olympics is at the top of the list. The priorities for the remaining $367 million in the Bus Program are: maintaining bus fleets; facility modernization; expanding fleets; infrastructure; BRT demonstration projects; use of innovative financing; clean fuels technology; and accessibility. For the first time under TEA-21 there will be no authorized bus earmarks in FY2002.

Overview of City Express!

Joe Magaldi, Deputy Director, Department of Transportation Services, City and County of Honolulu, provided the background of the City Express! service. Oahu Transit Services, Inc. (OTS) carries 73 million passengers per year, many of whom use the 12.6-mile BRT corridor. BRT has improved service by introducing the first "skip-stop" service in the Oahu bus system, limiting the number of stops to

19, and improving the average bus speed. Passengers now enjoy considerably faster trips than the 1 hour and 20 minute travel times they were experiencing on the route before BRT.

In the initial stages of planning for BRT, a Steering Committee was formed to determine what was needed. Membership on the committee included the Department of Transportation Services, OTS, and Wilson Consulting firm. An outreach program obtained inputs from riders, City Council, the University of Hawaii, neighborhood boards, and nearby communities.

Phase I, instituted in March 1999, covered 6.6 miles with nine 40-foot transit buses between Kalihi and the University of Hawaii. Bus features include automated next stop announcements, bike racks, and wheelchair lifts. The new BRT service achieved a 34-minute travel time versus the 68-minute time for the local bus. Twenty-five thousand bicycles are carried on these buses per month.

Phase II, instituted in August 1999, covered an additional 6 miles and 6 new stops. With the new segment, a 45-minute travel time was achieved end to end, using 15 buses on 3.1 miles of the freeway high-occupancy vehicle (HOV) shoulder lane in the morning peak travel hours.

Paul Steffens, Chief, Public Transit Division of the City and County of Honolulu, updated the statistics for Phases I and II of City Express! Data were obtained from before- and after-travel-time surveys, two onboard passenger surveys conducted in July 1999 and October 1999, surveys of both passengers at bus stops and drivers. Drivers were trained to provide information on fare types to supplement the farebox data, as well as to emphasize the "Aloha spirit." Passengers waiting at local bus stops were asked why they did not use the BRT service.

Results showed that ridership on the City Express! route increased from 40,000 during the first month of operation to 117,000 during January 2000. Travel time for the entire route was only 45 minutes, down from 1 hour and 20 minutes.

Adjustments were made to the schedule of City Express! in response to the survey: hours were extended to serve shopping centers, resulting in a major increase in riders.

The primary areas of focus for the BRT project were: marketing, improving travel times, use of Intelligent Transportation Systems (ITS), intersection improvements, dedicated bus lanes, and queue jumpers. The results were faster, more frequent, and better service.

Phase III will extend the initial route 7 miles, add 5 new stops, and add 2 new limited-stop express routes. Plans call for adding a second line to be known as "Country Express"

in May. In Phase IV more ITS will be implemented, including signal priority and traveler information (limited GPS-based next stop announcements). Thirty new low-floor buses will arrive in March, but they will be assigned to another higher usage route than City Express!

Phase V will introduce capital improvements, such as the construction of a transit center and dedicated bus lanes with station platforms. The MIS is in progress for a regional BRT system both with and without a bypass road. The alternatives reflect a major public outreach program passed by the City Council in December 1999.

Japanese Perspective on BRT

Hirotschi Tanaka, Director of the Road Traffic Promotion Office, Road Transport Bureau, Japanese Ministry of Transportation, made a presentation on how BRT fits into the "Omnibus Town" program in Japan. The Omnibus town reflects progress in the reduction of automobile usage and environmental pollution through bus services. Buses are safer and easy to use, road facilities are improved, and a better image is developed for bus use. This is brought about through the coordination of government agencies, bus manufacturing industries, and universities. BRT features include low-floor buses, park-and-ride facilities, new high-grade bus stops, and intelligent bus stops. The benefits are expected to be increased ridership and favorable user response.

Two Omnibus Towns are Kanazawa and Matsue City. Kanazawa boasts strong industry and educational facilities, and is the seat of the Ishikawa Prefecture. Although it had a metropolitan bus service and commuter rail, ridership was declining steadily. As automobile usage increased, the city suffered from automobile traffic problems and much congestion on its radial roadways. The Omnibus solution was initiated in 1998, and was composed of the following key elements:

- implementation of an express bus on 11 routes
- use of ultra low-floor buses in the narrow streets and shopping areas
- expanded park-and-ride bus services
- expanded cycle-and-ride bus services
- implementation of lanes with bus right-of-way
- bus stop enhancements
- introduction of "community buses" and ramp-equipped low-floor minibuses
- road intersection enhancements

The results were an increase in business activity, a ridership increase, and favorable user reaction.

Matsue City is a small town divided by a river, connected by four bridges, and heavily congested in peak commuting hours. In addition it is a weekend tourist destination causing weekend traffic congestion. Automobile is the predominant means of commuting with bus capturing only a 5-percent modal share. Beginning in 1998, the Omnibus Town program began to institute the following projects:

- ultra low-floor buses
- increased spatial coverage of bus service
- user information
- installation of bus location system
- installation of roofing at bus stops and terminals
- color paving for bus lanes
- implementation of bus priority system

The bus image became comparable to that of a system in an urban environment.

The Omnibus Town program is also employing ITS in selected locations to increase ridership, improve the environment and improve traffic systems. Efforts have been made to satisfy user requests for more accurate information, particularly on transfers. The bus operations management system is used to produce real-time user information. Tokyo demonstrations are currently underway for systems displaying real-time schedules, fares, and other information on the Internet and at bus centers. Evaluations are focusing on user benefits, and the accuracy of real-time information and digital maps.

Shusuke Suzuki, Active Chief of the Bus Planning Section, Transport Division, Ensyu Railway Company, described the Hamamatsu BRT system that consists of a number of privately operated lines under contract with the government. The system uses 49 ultra low-floor buses with automatic fare collection, other accessibility features, and digital electronic message signs. Reducing minimum fares on the system from 150 yen to 100 yen produced a 50-percent increase in ridership, especially children.

A survey of nonbus users revealed that real-time arrival information would make it easier to calculate wait times and reduce the total travel time for the trip. At major stops, therefore, bus location systems with electronic displays have been installed; they are also experimenting with bus location indicators for the home and the Internet.

Previously all bus routes passed through the central Hamamatsu station (radial system). Route reconfiguration allowed some routes to bypass the center. In addition, transportation demand management efforts introduced supplemental service with extra buses to major employers and industrial centers on rainy days. A public relations campaign was implemented to promote the system. Input from school children was used to select background music for the buses during the summer.

Mr. Suzuke made a video presentation on the Omnibus Town, showing its features and operation. It started by showing a user-friendly bus at a new bus stop, on clear pollution-free streets with no congestion. The low-floor feature eliminated the need to climb 90 cm into the traditional bus, providing better accessibility. The buses have switches that control ramps to be lowered for wheelchair access and straps for wheelchair safety. Their engines stop automatically at bus stops to reduce air pollution. Electronic signs on buses display news, public announcements, and weather. High-grade bus stations are equipped with digital bus location information and parking areas for bicycles. The Transportation Demand Management plan includes flex time, changes in bus routes to avoid congested highways, exclusive bus lanes, contracts with industries and schools to provide shuttle services, rideshare programs, telecommuting, and rainy day increases in service. Fare reductions attracted former walkers.

BRT Image and Marketing

Christina Kemmer, Chair of the Transportation Commission, City and County of Honolulu, focused on the human side of BRT: understanding the customer. First, she gave some background information on her organization. The Transportation Commission was established by city charter with seven members representing different areas of Oahu. Their purpose was to advise the Mayor and City Council on transit needs and to hold community vision sessions. At these meetings the need emerged for a transportation system that used less room, was information friendly, fast, frequent, and reliable. City Express! was conceived as an answer to these objectives.

City Express! was designed to serve not only the regular bus users, but also special constituencies and market segments, such as military personnel, tourists, and health-care centers. Driver interactions with riders would be important for creating a friendly atmosphere on board the vehicles. Individualized marketing would be important for converting nonbus riders to transit, since only about one-third of the public was knowledgeable about transit options. Local Hawaiian culture would make “talk story” marketing, that is, word-of-mouth communications, very effective on this island. The aim of marketing was to build on the existing customer base first. Pilot testing was performed before the large-scale application of marketing efforts. Marketing was focused where the greatest return could be achieved.

Dan Tutt, Public Involvement Specialist for Lane Transit District, described image considerations in their planning for BRT, and how a videotape presentation can be an effective marketing tool. The BRT corridor is 20 miles long, the first part of a 20-year program. First phase planning for the Eugene to Springfield route has been completed, and could be implemented by fall 2001.

The BRT system will look much like a light rail system, and can ultimately be converted to light rail if the population and customer base grows sufficiently. The system will use quiet, environmentally friendly vehicles. Bus stops will be spaced approximately one-third to one-half mile apart.

Dan showed a promotional video using photo simulations that cost them about $25,000 to produce. BRT's primary operation will be in a single-lane guideway in the median strip. The guideway takes up less space, offers improved safety, and is quieter relative to exclusive lanes on the street or a busway. There will be some mixed traffic operations, with queue jumpers at intersections. Cross traffic will experience a small amount of delay. Neighborhood connector services will feed passengers to the main BRT line. Bus travel times will remain constant over time, even as traffic increases; eventually, bus travel times may be shorter than automobile travel times. BRT features include prepaid fares, new stations, quiet, advanced technology, and low-floor vehicles.

To create space for the BRT lanes, planners used the existing curbside parking lanes in some segments; in other segments they used the existing median, and in some areas, they were forced to expand the roadway.

Luncheon Talk

Cheryl Soon spoke at lunch on the events that led Honolulu to choose BRT. Buses have always been popular with the people of Honolulu. The City made a number of false starts with expansion beginning in the 1980s when they had an Environmental Impact Study approved for an automated guideway system. A number of factors conspired to thwart funding for the system, and it was abandoned.

The City started focusing on existing customers, redesigning their transit service to offer express and off-peak express trips. They worked with a local management consultant to find out why various community sectors were negative about transit. They reached out to the community with listening sessions that actually helped the community design solutions to their own transportation problems. They changed the community's perception of their agency from one that imposes big projects regardless of the people's desires to one that can be trusted and will work to find solutions that satisfy everyone.

Other factors contributed to the initiation of BRT in Honolulu. A seven-year economic slump made an expansion project impossible. Then the FTA and other transit agencies across the country started to focus on the Curitiba example. The Mayor of Honolulu was impressed, as were many other officials. The ENO trip to Australia and New Zealand showed that BRT works. By the time the FTA BRT Demonstration Program was announced, Honolulu was more than ready to participate.

BRT Image and Marketing (continued)

Roger Morton, Senior Vice President and Director of Operations for Oahu Transit Services, spoke of the image and marketing efforts for City Express! The planning team believed that since they were developing in essence a new transportation mode, they needed to approach it the way marketers develop a new brand of product. They had to figure out a new identity to differentiate it from TheBus, Honolulu's regular bus service that had already achieved high credibility and approval.

The new BRT identity had to denote increased reliability and speed, reduced dwelling time and number of stops, priority routing, minimum neighborhood impacts, convenience and ease of use, contemporary and cutting-edge design, environmental friendliness, and good land-use planning.

Their solution was an integrated image and marketing plan that was composed of the following attributes:

- the name "City Express" conveying its urban setting, speed, and rapidity
- a letter route symbol to differentiate it from route numbers used by TheBus
- BRT "stations" rather than bus stops
- painted bus lane markings
- coordinated bus markings, station signage and promotional materials using the same Hawaiian color and design theme
- public relations campaign including a roving bus that served as a site for press conferences all over the system
- freebee passes to attract non-users
- continuing marketing with seasonal service during holiday seasons, employer programs, spots on "extreme" radio to attract students

Bill Haig, Customer Services Manager for Oahu Transit Services, discussed planning considerations for the design of logos and other marketing elements. The logo offers a business a way to make a powerful statement about itself. As an example, Bill described the development of the logo for Continental Airlines. The spherical logo overlaid with jet contrails denotes speed, air, modern, high tech, efficiency. Continental used it on everything they produced or carried on the airplane for a consistent, total look.

If a company looks credible and persuasive, then it usually is. Logos can help achieve that look by conveying three attributes: expert, trustworthy, and forward thinking. The name of the company or product should contribute to this identity. If a company chooses a name that is not descriptive of its business, it loses out on an opportunity to market itself. The name, City Express!, conveys these three attributes. Astute companies

combine advertising, public relations, and graphic design to produce one verbal and visual message in one voice.

Don Hamada, Chief of the Technology and Electrical Division, City and County of Honolulu, spoke of how ITS innovations contribute to the image of the City Express! demonstration, mainly in the areas of vehicle location, communications, traveler information, and signal prioritization.

City Express! buses are equipped with differential geographical positioning systems (GPS) for vehicle location purposes in combination with dead reckoning. This information provides meaningful and accurate information for customer information displays on vehicle location and arrival times. The kiosk displays use LED boards and electronic signs; information is also available on the Internet. Communications are accomplished over analog mobile telephone systems (AMPS) that poll radio channels for availability. Cellular digital packet systems were explored but currently their coverage and cost are limiting factors to their use on the buses.

The signal priority system has been integrated with the existing 3M emergency system. The system is very dependable and reasonably priced at $1,700 per bus card and $1,000 per intersection.

The ITS systems have enabled OTS to have reliable communications frequencies, increase capacity, maintain consistent travel speeds, on-time schedules, and short waiting times, and keep their traveling public informed.

Richard Zebinski, Vice President of Sales and Services for New Flyer, a manufacturer of heavy-duty transit buses, described the commuter-style buses they are manufacturing that are particularly appropriate for BRT applications. They plan to produce 2,000 buses in the year 2000.

Currently the low-floor, articulated buses are operating in Houston. The advantages of such buses are:

- fast loading and unloading
- high capacity
- commonality of components
- easy integration into fleet
- easy wheelchair access
- able to be customized to individual applications

The technology has “curb appeal” due to the pleasing exterior design of the bus. It is also attractive inside, with increased seating capacity and better access. The interior has molded components resulting in fewer seams, minimal use of trims, and no riveted panels.

Kevin Peterson, Senior Supervising Architect, Parsons Brinckerhoff Quade & Douglas, Station Design, discussed how paying attention to the aesthetics of bus, bus station, and bus system design can make a big difference in the perception of the system, and ultimately its ability to attract and maintain ridership.

Traditionally, the image of bus stations and bus systems has been impersonal and bland. Pavement on the landscape has defined a built environment and an inefficient use of space. Stations have tended to be shelters along broad expanses of pavement without much emphasis on the juncture of people and technology, as though designed on principles of a “brutalist” form of architecture. Customers were often asked to walk long distances, occasionally underground. A bus shelter was seen as a big benefit. The trade-off between operating speed and boarding comfort was often in favor of the former. The fact that stations can make strong visual impact was ignored.

Since 1996, progress has been made in system and station design. Current philosophy designates three major design thresholds: 1) minimal; 2) accommodation — showing concern for function; 3) respect — incorporating the sense of human experience and the sense of place. LRT tends to be at the third level; it exhibits a personality of space and instills a positive attitude in passengers. Examples of systems incorporating the third level can be found in Singapore, Los Angeles, Tempe, and Honolulu.

New propulsion systems that reduce pollution are available on the market. There are design issues related to the choice of diesel, hydroelectric, or CNG fuels. The degree to which safety, comfort, information, and attractiveness issues are addressed depends on what type of customer the agency is trying to attract. If the goal is to attract new riders other than the transit dependent, then system design should aspire for the third threshold. The cost implications of the third level are usually a small percentage of the overall project budget; nevertheless, the commitment to the design has to be strong to survive the budget process.

Ann Lusk, Research Assistant at the University of Michigan, described her research on bus vehicle and facility design. She hopes her research will bring increased dignity for low-income populations who use transit, entice middle-income people to choose transit, and give high-income-level people, and ultimately all income levels, a better impression of buses.

Ann presented slides of various bus stop designs to several low- and middle-income groups to obtain their perceptions of their personal safety. Participants seemed to be attracted to bus stops that looked like houses, neat and built solidly of brick materials, giving them a sense of enclosure. Their sense of safety was reduced when presented ultra modern designs with mismatched elements and few places to sit. The buses that appealed most to her subjects had clear, large glass windows yielding interior visibility.

The design of buses and bus stops should be compatible with the local environment, as though they were an extension of Main Street, or a piece of architecture. All the accessories, such as seating and trash cans, should be integral parts of the overall design.

Day 2: Wednesday, February 9

Mortimer Downey, Deputy Secretary of the U.S. Department of Transportation, kicked off the second day of the workshop. He emphasized how everyone benefits from exchanging ideas and information with our transit counterparts in other nations. For example, we have learned from studying Curitiba's BRT system, which has reduced transportation congestion in that city and increased bus patronage to 75 percent of the population. The USDOT's work with the Ministry of Japan has encouraged us to look at innovation in transit.

This workshop's focus on image and marketing emphasizes how marketing can be just as effective as service characteristics in attracting and maintaining ridership. The bus image problem is real, but it can be overcome. Honolulu's marketing program, along with the 30-minute reduction in travel time, has caused the average weekday ridership on City Express! to double and spurred monthly pass sales.

Traditionally, rail ridership reflects economic conditions, while bus ridership declines every year. This trend has changed in recent years: bus ridership is up. Examples of factors that have contributed to this change can be seen across the country. In New York City, coordination of transit with other parts of the transportation system has been accomplished through passes that are interchangeable for bus, rail, and linking trips. In Los Angeles, the Ventura Boulevard Project will be coming online soon, offering an express system matching automobile travel times and linking to the heavy-rail Red Line. A BRT route is being established in the Dulles airport corridor, one of the most congested and fastest growing corridors in country. BRT can be implemented quickly, allowing for the possibility of upgrading to rail in some cases. Additional projects will demonstrate viability of concepts, such as ITS, signal preemption for buses, automatic vehicle location (AVL), and real-time passenger information at stations and on-board buses.

In five years, the FTA is striving to have at least 10 operational, successful BRT projects. Another goal is to leverage land use and development, and address related issues of congestion and sprawl. The Federal government can contribute transportation investments that will promote sound development patterns. BRT is a solution to ease highway gridlock, minimize budgets, increase the livability of cities, give local decision-makers ownership of the BRT design, and invest sensibly.

International Perspective on BRT

Tetsuya Hayashi, of the General Affairs Division of the City of Nagoya, discussed BRT in Nagoya. As background, he said that the city, mostly destroyed in World War II, has grown up as an automotive-reliant city with a daytime population of over 2.5 million people. Commuters have the option of using a network of buses and subway, but most choose the automobile. While rail is the dominant public transit mode in high-density cities like Tokyo and Osaka, cars dominate in Nagoya.

The toll paid for high automobile usage is numerous traffic accidents, road congestion, high costs for land acquisition for roads and parking lots, and the environmental problems of air pollution (automobiles were responsible for 86 percent of carbon monoxide releases in Japan) and global warming. In addition, illegal parking has become a serious problem. Looking ahead, increased traffic, the aging of the population and lower tax receipts promise to pose new challenges.

The government has taken steps to address some of these problems. They established a goal of 10 percent reduction in emissions. They sought new solutions by instituting a program of transportation demand management that included road use that gives priority to pedestrians, bicycles, and transit, and improved convenience of public transportation (rapid transit, increased comfort), i.e., bus rapid transit, known as the "Key Route Bus System."

The Key Route Bus Plan calls for an exclusive bus lane in the center of a road when possible, with bus stops in the median; signal priority; 800-1000m stop intervals, as in subways; and large-capacity vehicles. Two of eight proposed routes are now in service. The Shindekimachi Line is 6.1-miles long and runs on exclusive lanes with signal priority for buses in some segments. Bus stops are located on islands or in stations with real-time passenger information systems. The stop interval is 0.39 mile and the buses travel at 12 miles per hour (mph) compared to 8 mph for ordinary buses. Service is offered with 2-minute headways during the peak periods and 3-minute headways during the off peak. The second Key Route Bus line is the Toko line where buses travel along the side of the road. A novel terracing approach, akin to bus bulbs, has eradicated the problem of illegal parking at bus stops.

The Shidami line, an elevated guideway bus route, is now under construction to begin operations in March 2001. Unfortunately the guiding devices underneath the buses preclude the use of low-floor or alternative fuel buses. It is a very expensive system. The Shidami line will consist of a 4.2-mile elevated section with guided operation and a 2.8-mile section with manual surface operations. It will link to the subway, the Meitetsu Line, the City Bus, and park-and-ride lots.

The Shidami line features a bus vehicle location information system on the elevated portion; a communication cable and roadside sensors provide location information on the surface road portion. The cable also uses an infrared beacon to transmit communications from on board to the traffic control center. The elevated portion will have nine stops every 0.5 mile.

Mr. Hayashi showed a video of Toyota's IMTS guided surface busway system that would permit the platooning of vehicles, control headway distance, and keep buses in their lanes. The advantages of such a system would be lower construction costs than an elevated guideway, lower maintenance for both the guideway and the vehicles, and a high degree of flexibility. The guideway is both environment and people friendly, and would eliminate mechanically operated guideways.

Colin Menzies, General Manager for Commercial Strategy State Transit in Sydney, Australia, described the advances in BRT operations in Australia. Their projects have supported the strong inverse relationship between speed and the cost of transit services. The cost per mile for city bus operations is $5.50 per mile for average speeds of 10 mph. Some BRT services operate at higher speeds of 20 mph, and achieve a much lower cost per mile. Private operators have difficulty making profit in lower density suburbs. Major Australian cities have put together plans to improve public transportation — plans are critical since the high turnover at agencies means that people are not around long enough to see projects through. Land use is one of the more difficult obstacles. Examples of four cities that have developed plans for BRT are cited below.

The City of Brisbane projects a 60 percent increase in population. Mobile source emissions are a big concern. The city's 25-year plan calls for an increase in transit usage to 15 percent, as well as an increase in walking and vehicle occupancy. The goal is to stabilize vehicle miles traveled to 25 km per person per day. Six hundred million dollars is to be spent on a 46-kilometer busway network with 51 stations. The proposal has generated a lot of public negotiation, protest, and opposition but is eventually expected to be approved.

Sydney has plans to build $770 million Rapid Bus Only Transitways, after having determined that the population density was too low for LRT. The transitways would have the advantage of being able to reduce bus transfers. The first busway will be completed by 2002, although the program will continue through 2010. The Liverpool to Parramatta line will offer three types of service — dedicated busway, feeder only, and mixed feeder, with comfortable transfers. Sydney has many bus priority measures clearly identified with paint, but still dependent on critical enforcement. The Sydney Harbor Bridge of the transitway is a powerful example of BRT success. It carries more passengers than all other lanes on the parallel roadway. A large CNG natural gas fleet is used, because the image of diesel was of dirty, smoke-belching buses. With the increase in outdoor living,

cafe proprietors were complaining about bus smoke. The Euro 2 clean diesel fuel bus was a possibility but was not considered clean enough. Low-floor air conditioned buses are concentrated on the bus lanes. The result has been a change in the perception of the quality of bus service and a 5 to 10 percent ridership increase.

Adelaide boasts the famous German O-Bahn guided busway. Like Sydney, Adelaide considered LRT, but ultimately decided in 1982 on O-Bahn to run from the center city to Tee Tree Plaza in the northeast. The one limitation of a guided busway is that it precludes the use of low-floor buses; however, more than 100 of the buses are articulated. Neverthless, very smooth running is obtained at 60-mph maximum speed, providing a comfortable and very safe ride for the 18-minute duration end to end. The cost to build the guided busway was $98 million, 10 to 15 percent higher than the cost of a conventional busway. The busway was built in a desolate, beautiful area with the result that 34 percent of the riders choose it because they want to view the scenery.

The City of Perth is very automobile-oriented, with a low population density and poor bus access. Their transit system achieves only a 33-percent farebox recovery. The Perth central business district has been declining in importance with only 20 percent of the region's employment. A program of bus rapid transit is planned. If planners estimate that usage will be more than 2,000 passengers per hour, a busway will be built in a city circle route that would short circuit radial routes. A traffic priority system is planned, along with new low-floor vehicles to improve public perception of public transport. The goal is to increase the current 6.4 percent ridership to 12.5 percent.

Australian cities have made a significant turn to rapid bus transit, particularly where the patronage potential is too low for LRT. They are focusing on new buses on new routes, reducing emissions, and providing a pleasant experience for riders, and free or low-cost transportation to events, and their marketing strategy.

John Marino representing the French company Matra Transport International, described the BRT project in Rouen, France, currently under construction as a 50/50 joint venture between Renault and Fiat Iveco. This project, along with four other cities (Lyon, Grenoble, Clermont-Ferrand), has chosen CIVIS technology. Two of the four are building guided busways, the other two without guidance.

Rouen is a city with a population of 400,000. In 1997 they tried to build an East-West LRT line to complement their North-South LRT line, but decided it was too expensive. They turned to BRT for their East-West service, and began construction in September 1999. The BRT system will have three lines totaling 15 miles. About 60 percent of the system will run on a dedicated right-of-way with signal priority throughout.

Operating characteristics are 2-minute trunk headways with 6-minute headways outside the central area; there will be four trunk alternatives in the downtown area, all on separate rights-of-way. Projections are for 60,000 riders after five years. System capacity will carry 3,000 passengers per hour in each direction. The aim is to provide high quality service at a reasonable cost.

Stations will be designed to look like rail metro stops. Light landscaping rocks will highlight the right-of-way pavement to differentiate it from regular traffic lanes.

The project will cost $11 million per mile, or $163 million total capital cost. To begin with, diesel-powered buses will operate on the routes. These will be replaced with low-floor, ADA compliant, dual mode diesel/electric articulated buses. Passenger information systems will be standard production components and easy to maintain. Other features include a smooth ride with minimal sway, accessibiity, large window areas, comfort, pull-down seats, and quiet operation.

The buses will be able to operate either on fixed guideways or regular streets. The guidance system is optional at a price of $10,000 per bus. It allows the bus to stop very accurately, reduces dwell time, and reduces the width of the lane needed by 4.5 feet. The guidance system uses cameras mounted on the outside of the bus to detect markings on the road surface. The driver is always there as a backup.

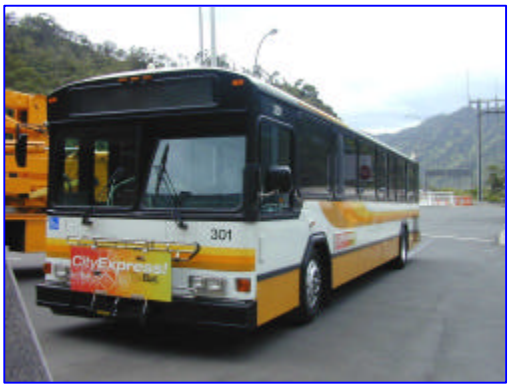
FTA BRT Activities

Bert Arrillaga, Chief of the Service Assistance Division at FTA, closed out the sessions with a demonstration of the FTA's BRT Web site. This is a comprehensive resource for information on BRT concepts, participating projects, and BRT workshops with links to many other useful sites.

- Demonstration Program: The 17 consortium members participating in the BRT program are listed in the Web site with project summaries, fact sheets, and contact information.
- Reference Guide: In the Reference Guide are a complete list of BRT features, BRT concepts, case studies, and links to existing and planned projects all over the world.
- Workshops: Proceedings of previous workshops are included along with lists of attendees.
- Discussion Board: This is the vehicle for BRT planners and other interested parties to post questions about BRT, and hear what others are thinking and doing in BRT.

City Express! Tour

Participants in the workshop were treated to a tour of the City Express! service on Wednesday afternoon. They departed Hilton Hawaiian Village in a private City Express! bus and headed to the University of Hawaii, Manoa (Sinclair Circle Bus Stop), which is one terminus of the route. The tour then proceeded through the primary urban corridor to the Pearlridge Shopping Center terminus in Pearl City.



The 12.6-mile route runs along Kapiolani Boulevard providing service to major commercial centers and the largest shopping center on Oahu, the Ala Moana Center. From Kapiolani Boulevard, City Express! stops at the Alapai Transit Station, which is the primary transfer point to express buses that serve outlying rural areas. City Express! then proceeds through the major business and financial centers to the residential area of Kalihi and to the Kalihi Transit Center, which is the headquarters for TheBus and a major transfer point. From Kalihi, City Express! travels on the H-1 freeway to Kamehameha Highway servicing the Pearl Harbor Naval Base, the Arizona Memorial and Aloha Stadium before arriving at the Pearlridge Shopping Center terminus.

City Express! stops at 19 bus stops in each direction and has a travel time of approximately one hour and twenty minutes.

In addition to the City Express! route, participants were shown the State of Hawaii Traffic Management Center located at the entrance to the H-3 Freeway tunnel and the City and County of Honolulu Traffic Management Center located in Manoa. These traffic management centers provide live visual coverage of all major intersections and freeway on/off ramps on Oahu.

Bus Rapid Transit Demonstration Program
Workshop on Image and Marketing
Honolulu, Hawaii
February 8 and 9, 2000

List of Attendees

Boston:	Mr. Howard Haywood	Chief of Design & Construction, MBTA
Cleveland:	Mr. Michael York	Deputy GM for Operations
	Ms. Jeri Chaiken	Director, Euclid Corridor Project
Dulles:	Mr. Gary Kuykendall	Transportation Engineer Supervisor
	Mr. Corey Hill	Transportation Engineer Senior
Eugene:	Mr. Ed Bergeron	Manager, Public Affairs
	Mr. Dan Tutt	Public Involvement Specialist
Hartford:	Mr. Michael Sanders	Public Transit Administrator
	Ms. Sandra Bartenstein	Transportation Planner
Honolulu:	**City and County of Honolulu**	
	Ms. Cheryl D. Soon	Director, Department of Transportation Services
	Mr. Joseph M. Magaldi, Jr.	Deputy Director, Department of Transportation Services
	Mr. Paul Steffens	Chief, Public Transit Division, Department of Transportation Services
	Mr. Don Hamada	Chief, Traffic Signals and Technology Division
	Mr. Ryan Tam	Transportation Planner
	Ms. Cindy McMillan	Public Relations
	Ms. Phyllis Kurio	Federal Grants Management
	Ms. Edwina Tabata	Internal Controls Auditor
	Mr. Toru Hamayasu	Chief, Transportation Systems Planning Division
	Oahu Transit Services	
	Mr. Roger Morton	Senior Vice President
	Mr. Bill Haig	Customer Service Manager
	Mr. Ken Stanley	Vice President, Operations and Marketing

	Mr. Eric Oh	Transit Planner
	Mr. James Cowen	President and CEO
Honolulu:	**Transportation Commission**	
	Ms. Christina Kemmer	Chair
	Mr. Charles Swanson	Transportation Commissioner
	City Council	
	Mr. Steve Holmes	Council Member
	Mr. Duke Bainum	Chair, Transportation Committee
	Ms. Mallory Fujitani	Aide to Councilman Bainum
	Mr. Jon Yoshimura	Chair
	Mr. Andy Mirikitani	Council Member
	Mayor	Mr. Jeremy Harris
	Center for Independent Living	Ms. Hiroko Kobira
	Planner	Mr. James Burke
Miami:	Mr. Alberto Parjus	Chief, Management & Information Services, Metro-Dade Transit Agency
	Ms. Isabel Padron	Project Engineer, Metro-Dade Transit Agency
Los Angeles:	Mr. Rex Gephart	Project Manager
AC Transit:	Mr. Rick Fernandez	General Manager
	Mr. Jaime Levin	Director of Marketing and Communications
	Mr. Aena Prakash	Senior Transportation Planner
	Mr. Pat Cannon	Chief Operations Officer
U.S. Department of Transportation:		
	Mr. Mortimer Downey	Deputy Secretary, Department of Transportation
	Mr. Robert Ashby	Assistant General Counsel
	Mr. Herman Bliss	Manager, Airports Division, FAA
	Ms. Phyllis Gales	International Transportation Specialist

Federal Transit Administration:

Mr. Bert Arrillaga	Chief, Service Innovation Division
Ms. Rita Daguillard	Director, International Mass Transit Programs
Mr. Walter Kulyk	Director, Office of Mobility Innovation
Mr. Mathews Welbes	SA, Office of Budget and Policy
Mr. Michael Winter	Associate Administrator, Office of Budget and Policy
Mr. Edward Thomas	Associate Administrator, Research, Demonstration & Innovation
Mr. Leslie Rogers	Regional Administrator, Region 9

Federal Highway Administration - Hawaii:

Ms. Susan Klekar	Assistant Division Administrator

U.S. President's Executive Commission on the Employment of People with Disabilities:

Mr. John Lancaster	Executive Director

American Public Transportation Association:

Mr. William Millar	President
Mr. David Turney	Business Member, Board of Governors, International Committee
Ms. Frances Hooper	Director, Business Members & Comm. Rail Support Services
Mr. John Bartosiewicz	Chair, Executive Committee
Ms. Stephanie Pinson	Chair, Business Members
Mr. Anthony Kouneski	Vice-President, Member Services

New Flyer: Mr. Richard Zebinski — Vice President, Sales & Service

Parsons Quade Douglas & Brinckerhoff:

Mr. Kevin Peterson	Senior Supervising Architect
Mr. Robert Braeman	

Chance Coach:

Ms. Reba Malone	Vice-President for Market Development

National Highway Traffic Safety Administration:

Mr. August Burgett	Chief, Advance Safety Systems Research Division

Raytheon:	Mr. Robert Brannick	Deputy Director, Dulles Corridor Project
	Ms. Lyn McDonald	
	Mr. Larry Shaw	
Volpe National Transportation Systems Center:		
	Ms. Judith Schwenk	Transportation Planner
	Ms. Melissa Laube	Transportation Planner
	Ms. Carol-Ann Courtney	Conference Coordinator
Transportation Research Board:		
	Ms. Gwen Chisholm-Smith	Senior Program Officer
Japan:	**Ministry of Transport**	
	Mr. Koji Inoue	Vice-Minster for Technical Affairs
	Mr. Ryoichi Sonoda	Director, First International Affairs Division, Transport Policy Bureau
	Mr. Yutaka Hasegawa	Deputy Director, First International Affairs Division, Transport Policy Bureau
	Mr. Takahiro Hamura	Chief, First International Affairs Division, Transport Policy Bureau
	Mr. Tsutomu Akita	Senior Officer for Technology Development and Promotion, Technology and Safety Division, Transport Policy Bureau
	Mr. Kenji Shiratori	Director, Engineering Planning Division, Railway Bureau
	Mr. Masaru Iwamatsu	Researcher, Engineering Planning Division, Railway Bureau
	Mr. Hirotoshi Tanaka	Director of Road Traffic Promotion Office, Road Transport Bureau
	Mr. Takao Onoda	Deputy Director, Vehicle and Component Approvals Division, Engineering and Safety Department, Road Transport Bureau
	Mr. Yukihiro Yasuhara	Director, Regional Transport Planning Division, Transport Policy Bureau

Private Sector

Mr. Junichi Kanamaru	Chairman, Transport Ecology & Mobility Foundation
Mr. Tetsuo Akiyama	Director of Engineering, Associate Professor, Tokyo Metropolitan University
Mr. Akira Kodama	Chairman, Federation of Organization for Physically Disabled Persons
Ms. Yuki Maejima	Asian Development for the People with Disability
Mr. Ryusuke Itazaki	Director, Washington Office, Japan Automobile Standards Internationalization Center
Mr. Akihiko Nishimura	Director of Engineering, Chief Engineer, Structure Technology Development Division, Railway Technical Research Institute
Mr. Shusuke Suzuki	Active Chief, Bus Planning Section, Transport Division, Ensuyu Railway Co.
Mr. Taisuke Miyamoto	Secretary-General, Japan National Assembly of Disabled People International
Mr. Satoru Misawa	Secretary-General, Japan National Assembly of Disabled People International

Japan: **Special Members**

Mr. Gotaro Ogawa	Consul General of Japan at Honolulu
Mr. Koichi Shiota	Vice Consul, Consulate General of Japan at Honolulu
Mr. Tetsuya Hayashi	General Affairs Division, Nagoya City